

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following remarks is respectfully requested.

Claims 1-20 are active in this application, Claims 1 and 2 having been amended and new Claims 17-20 added by the present amendment.

In the outstanding Office Action Claims 1, 3, 5 and 14 were rejected under 35 USC §102(e) as being anticipated by Stobbs (U.S. Publication 20043/0150091), Claims 2, 4, 7, 9 and 11 were rejected under 35 USC §103(a) as being unpatentable over Butt (U.S. Patent 4,524,238) in view of Stobbs, Claim 6 was rejected under 35 USC §103(a) as being unpatentable over Stobbs in view of Butt, Claims 8 and 10 were rejected under 35 USC §103(a) as being unpatentable over Stobbs as applied to Claim 1 above, and further in view of Butt, Claim 12 was rejected under 35 USC §103(a) as being unpatentable over Stobbs as applied to Claim 1 above, and further in view of Hirai (U.S. Publication 2002/0131296), Claim 13 was rejected under 35 USC §103(a) as being unpatentable over Butt and Stobbs as applied to Claim 2 above, and further in view of Hirai, and Claims 15 and 16 were rejected under 35 USC §103(a) as being unpatentable over Stobbs.

In light of the several grounds for rejection, the pending claims have been amended, as discussed in more detail hereinafter, to clarify the claimed invention and thereby more clearly patentably define over the cited prior art. New Claims 17-20 are also submitted herewith. The SUMMARY section of the specification has been amended to reflect the amended and new independent claims. No new matter has been added, as also noted hereinafter.

Claim 1 has been amended, consistent with the embodiment e.g. shown in FIG. 4, and is thus not believed to be anticipated by either Stobbs or Butt.

In particular, as described in Applicants' specification at page 15, ceramic cap 32 serves to create a cavity around semiconductor chip 11 and bonding wires 16. This avoids defects that a resin forming package 13 may be inappropriately injected, and bonding wires 16 may be cut.

According to the present invention, as stated at page 15, lines 1-14, magnetic substance particles 14 are preferably interspersed in base material 31 and cap material 32, and are substantially spherical. Thus, as described in the specification, the magnetic shape anisotropy is not exhibited, and the orientations of spins can be easily varied depending on external leakage magnetic fields. As a result, a magnetic shield effect can be produced using a reduced amount of magnetic substance particles 14. It is thus possible to reduce the cost of products such as MRAMs, and improve their reliability.

In view of such structure as stated in amended Claim 1, it is respectfully submitted that the claimed semiconductor device is neither anticipated nor rendered obvious over the teachings of either Stobbs or Butt, and the outstanding rejection of Claim 1 has been overcome.

Claim 2 recites a semiconductor device comprising a semiconductor chip comprising a magnetic element; an enclosure which seals the semiconductor chip and which has a base material and a cap material joined together via a sealing material; and a magnetic film provided on a chip side surface of the base material and on an inner surface of the cap material so as to surround the semiconductor chip. The outstanding Official Action states the position that the "glass bondable cladding layer 92" of Butt corresponds to the "magnetic film" recited in Claim 2. However, Butt describes at column 6, lines 63-67 that layer 92 is provided to maximize the strength and resistance to fracture of substance 82, along with cladding 96.

On the other hand, as described in Applicants' disclosure,¹ magnetic film 34 surrounds the magnetic element in semiconductor chip 11 and absorbs most external leakage magnetic fields. Consequently, few external magnetic fields are applied to the magnetic element in semiconductor chip 11, resulting in a high magnetic shielding effect. Thus, it is respectfully submitted that the subject matter of amended Claim 2 is neither anticipated by, or rendered obvious over, Butt, and is different from Butt in terms of the advantages attained by the present invention. It is therefore respectfully submitted that the claimed semiconductor device of Claim 2 is neither anticipated nor rendered obvious over the teachings of Butt, and the outstanding rejection of Claim 2 has been overcome.

New claim 17 recites a semiconductor device comprising a semiconductor chip comprising a magnetic element; an enclosure which seals the magnetic chip; and substantially spherical magnetic substance particles which are interspersed in the enclosure, the particles preventing magnetic shape anisotropy. Thus, as described in at page 9 of the specification, the magnetic shape anisotropy is not exhibited, and the orientations of spins can be easily varied depending on external leakage magnetic fields. As a result, a magnetic shield effect can be produced using a reduced amount of magnetic substance particles 14. It is thus possible to reduce the cost of products such as MRAMs, and improve their reliability.

Stobbs illustrates black dots indicating magnetic particles, for example, in FIG.4; however, the dots are not described as "spherical." Stobbs also does not describe the above-mentioned advantages obtained when magnetic particles are spherical. It is therefore respectfully submitted that the claimed semiconductor device of Claim 17 is patentably distinguishing over the teachings of Stobbs.

Consequently, in view of the present amendment and in light of the above comments, the pending claims are believed to be patentably distinguishing over the cited

¹ Specification, page 13 and FIG.3.

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prior art and in condition for allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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